New, 2005 CATERPILLAR
980 H
WHEEL LOADER

Performance Specifications

This wheel loader and associated equipment will be used by **Cold Regions Test Center (CRTC)**, during the winter test season to maintain the vehicle test track, build and maintain test track snow fields and slopes, ice roads and bridges for winter range access, clear parking lots and remote, range access roads. During the summer months it will be used for range improvement and expansion, road upgrades and range clean up. With the additional forks that are being ordered with this loader, CRTC will be able to load, unload and relocate heavy targets, warm-ups, connexes and large test items and their associate equipment and containers on and off transport vehicles at range locations and to and from test sites.

This wheel loader shall be a new, currently advertised standard production model with options to meet the following criteria.

SPECIFICATIONS:

General Machine Specifications

1 Machine operating weight, wet, (with full fluids, operator) shall not be less than 68,000 lbs
2. Machine shall be equipped with front fenders and rear platform extensions.
3. Machine shall be equipped with a standard counter weight that shall not weight more than 3200 lbs.
4. Machine's full static tipping load shall be at least 41,500 lbs without additional counter weight or tire ballast.
5. Breakout force shall not be less than 47,800 lb. measured 4 in. behind tip of bucket cutting edge in accordance with SAE J732C.
6. Bucket dump height at full lift and 45 degrees discharge shall be a minimum of 129 in.
7. Bucket reach at full lift and 45 degrees discharge shall be a minimum of 61 in.
8. Maximum bucket width shall exceed 136 in
9. Minimum bucket rack back angle in the carry position shall be at least 46 degrees, 60 degrees at maximum lift and 36 degrees at the ground.
10. Machine, overall length with bucket on the ground, level, shall be no more than 31 ft. 1 in.
11. Machine wheel base, measured between the centers of each axle shall be 146 inches.
12. Machine width, over tires shall not be less than 128 in. and not exceed 132 in.
13. Machine ground clearance shall not be less than 18.4 in. or more than 19 in.

14. Machine shall have Radial 29.5-R25 L3 traction tires, Michelin XHA 29.5-R25, L3 or Goodyear RL-2+, L3 traction
15. Machine shall have insulated Cab/Rops that meets ISO and SAE standards
16. Machine height from top of ROPS to ground shall not exceed 148 in.
17. Machine shall be standard equipped with a minimum 120 gallon fuel tank
18. Machine shall come with the manufacturer's brand hydraulic actuated, cab controlled implement quick coupler (horizontal pin), rated for the size of the machine.

Power Train:

1. Engine Type; Diesel, 4 stroke, 6 cylinder, turbo charged, direct fuel injected
2. Engine shall be built and warranted by the machine manufacturer.
3. Engine shall have individual cylinder injection pumps and valves.
4. Engine shall meet current U.S. EPA Tier lll emissions standards.
5. Engine shall have a total displacement of not less than 14.6 liters.
6. Engine shall develop at least 318 net hp and 355 max flywheel hp. @ 1800 RPM, with the standard operating equipment installed and operating; cooling fan, lube oil pump, air cleaner, water pump, muffler and alternator.
7. Engine shall develop at least 1190 lb. ft of torque @ 1200 RPM.
8. Engine air cleaner shall be a dual element dry-type with pre-cleaner and service indicator.
9. Engine shall be enclosed in a one piece tilting hood for complete access to engine and related components.
10. Engine shall have a standard reverse flow cooling system fan, drawing air from the rear of the machine through the radiator and exhausting out the engine cowling.
11. Engine shall come equipped with 120VAC engine coolant heater, oil pan heater and hydraulic tank heater wired into a common box with a 25 ft. artic rated connecting cable and male plug.
12. Engine shall come standard with extended life coolant mixed to minimum freezing temperature of -58'F below zero.
13. Engine shall come standard with ether starting aid controlled from cab and an Espar (D-10) diesel fired coolant heater, supplied and installed by vendor for cold weather operation.

Transmission/Power Train

1. Transmission and other major power train components, shall be manufactured by machine manufacturer, (axles).
2. Transmission shall be 4 speed, planetary power shift automatic with the capability of making speed and direction changes at full speed without engine deceleration.
3. Transmission shall be electronically controlled.

4. Transmission shall automatically select the proper gear above first gear. The operator shall be able to select the highest gear that the transmission will automatically shift.
5. Transmission shall have an operator controlled gear kick down button so transmission will shift to next lower gear in automatic mode.
6. Transmission shall have a Variable Shift Control (VSC), allowing the operator to select three different shifting patterns ranging from aggressive truck loading mode to fuel economy mode.
7. Both direction and gear selection shall be actuated by a single control lever mounted on the left side of the steering wheel.
8. The machine shall 4 speeds forward and 4 speeds reverse.
9. Transmission shall be able to operate in full manual shifting 1^{st} thru 4^{th}.
10. Transmission shall have a transmission fluid sight glass.
11. Machine shall be able to achieve forward speed of 22 MPH and a reverse speed of 24 MPH.
12. Transmission shall have a vertical mounted oil filter for ease of filter changes.
13. Torque Converter shall be a Free Wheel Stator design
14. Final drives shall be planetary design.
15. Final drives shall be serviceable without removing wheels.
16. Both axles shall be free floating and equipped with limited slip differential.
17. Front axle is frame fixed and rear axle oscillating with no less than 26 degrees total oscillation.
18. Machine shall have power train and crankcase skid guards.
19. Axles shall be equipped with extreme temperature axle seals, (-50 thru +300)
20. Axles shall have an external oil cooler to cool gear lube.
21. The transmission shall be equipped with an integrated braking system to reduce brake and axle oil temperatures and improve transmission declutch smoothness.

Brakes

1. Machine shall have sealed, oil cooled multiple disc-type, adjustment free service brakes, mounted on the low torque side of the final drive, in the axle assembly.
2. Machine shall have two brake pedals, right brake pedal – service brakes only; left brake pedal shall be normally declutch/brakes, with an activation switch the left brake pedal can be switched to service brake only also.
3. Service brake hydraulic circuits front shall be independent from rear service brake circuits to provide braking in case of system malfunction.
4. Machine shall have audible and visual indicators in cab to alert operator if service brake actuating pressure drops below safe operating levels.
5. A secondary/parking brake shall apply if service brake actuating pressure drops below a safe operating level.

Steering

1. Machine shall have a full hydraulic pilot operated, load sensing steering piston pump, independent of the main implement hydraulic pump.
2. Machine shall have a hydraulic actuated articulating steering with at least 37 degrees articulation angle either direction, using steering neutralizer valves.
3. Machine turning diameter shall not exceed 51ft. 9 in. as measured at the outside tip of the bucket.

Frames

1. Machine loader linkage shall be Z-bar type for increased breakout force.
2. Machine loader lift arms shall be constructed of one solid plate to provide strength and visibility.
3. Machine loader lift arm side plates shall be connected with a single piece cast steel cross member to transfer load stress to side plates.
4. Machine, loader bucket tilt lever shall be cast design for strength and durability.
5. Machine front frame shall be vertical plates perpendicular to the differential, acting as a cross member to absorb loads and distribute stress away from the front axle.
6. Rear frame shall be box section modular design to absorb shock loads and resist twisting.
7. Machine shall have lifting/tie down eyes for transport.
8. Machine shall have a single mechanical locking device for the articulation joint to prevent frame articulation while transporting and servicing.
9. Articulation joint shall have double taper roller bearings in the upper and lower hitch for increased life.
10. The distance from the bottom of upper hitch pin to the top of lower hitch pin shall not be less than 33 inches for increased stress distribution.
11. The articulation hitch area shall have a vertical support member, separate from loader frame, connecting the upper and lower hitch plates to absorb torsion forces and increase hitch and bearing durability.

Hydraulics

1. Machine’s hydraulic system shall be sealed and fully filtered.
2. Machine’s hydraulic system (including tank) shall not be less than 65 gallons.
3. Hydraulic pressure taps shall be standard for checking implement and steering systems.
4. Oil sample ports shall be installed standard for engine oil, transmission oil and hydraulic oil.
5. Machine shall have adjustable automatic bucket positioner and lift arm angle kick out. Adjustable from inside the cab.
6. Machine bucket/work tool controls shall be a two lever electric over hydraulic design.
7. Locking devices shall be capable of disabling the lift arm and bucket levers.
8. Hydraulic implement pump output minimum of 120 gallons per minute.

9. Hydraulic implement pump gear type.
10. Implement hydraulic system relief pressure 3000 psi.
11. Ride Control System, (2 valves), to improve machine stability during roading shall be standard and operator controlled from inside the cab.
12. Hydraulic system shall come standard with a third valve hydraulic system with cab mounted control lever and hydraulic lines, with quick disconnects, and weather proof caps to end at the lift arms.

Cab/Operators Station

1. Integral Rollover Protection and sound suppressed cab shall be standard to meet OSHA and MSHA standards.
2. A pressurized cab with filtered air circulation, air conditioner, high output heater and defroster shall be standard.
3. Cab shall not have any curved glass that may cause vision distortion.
4. The cab shall be mounted on the rear frame section of the machine.
5. The steering wheel and transmission controls shall be adjustable up and down as well as telescoping as a single unit.
6. Operators seat shall be an adjustable, suspension type, with right and left arm rests and a 3 in. wide seat belt
7. Cab shall have a right and left doors with sliding glass windows for operator entrance and exit.
8. Cab shall have wiper/washers for front windshield and rear window standard.
9. Instrument gauge cluster monitoring engine oil pressure, coolant temperature, trans temp, fuel level and speedometer/tachometer.
10. Computerized monitoring system, monitoring critical machine operating systems like, charging system, axle oil temp, engine oil pressure, fuel pressure, hydraulic filter by-pass, hydraulic level, trans oil filter bypass, air filter restriction, parking brake.
11. An electric horn shall be standard on the steering wheel.
12. Cab shall have two externally mounted (right & left) and an interior rear view mirrors
13. Cab shall have a sun visor for front windshield and dome light.

Electrical/Lighting

1. Machine shall have 24 VDC starting and charging system with a master disconnect switch.
2. Machine shall be standard with 4 ea (740CCA) 12 volt, maintenance free batteries.
3. Machine charging system shall be a 24 volt, minimum of 95 amp, heavy duty brushless alternator.
4. Starter shall be a heavy duty 24 VDC electric type.
5. Machine shall come equipped with an emergency start, 24 volt receptacle.
6. Machine shall have standard electric back-up alarm.

7. Machine shall have 4 exterior halogen lights facing forward and 2 halogen lights facing rearward.
8. Machine shall have an AM/FM radio, antenna and speakers (12 volt) as well as a 12 volt power outlet (cigarette lighter).
9. Machine shall be equipped with directional signal lights and 6 inch flashing yellow (strobe) beacon.

Implements

1. Bucket shall be manufacturer's brand with manufacturer's quick coupler attached; General Purpose (GP) 6.5 cubic yard (cyd). bucket with 8 bolt on teeth adapters, 139" wide, with bolt on adapters and segments and corner bits 139" wide, with bolt on reversible cutting edge, 136" wide. This is one bucket with several different configurations
2. Bucket shall have segments, corner bits and teeth installed on the bucket. Two sets of bucket teeth, segments, corner bits, and three reversible cutting edges for the bucket shall be supplied with machine at time of contract completion.
3. Material handling pallet forks shall be manufacturer's brand, hydraulic adjusting (side to side, using third valve) rated for the machine lift capacity, with manufacturer's quick coupler attached.
4. Forks shall be swinging tine type, 112" carriage minimum, 96" tine length and minimum of 48" height.
5. Snow Plow blade and quick coupler shall be manufacturer's brand, 180" wide, 48" high, hydraulic reversible angle, with spring loaded trip edge, replaceable cutting edge and swiveling blade height adjusting casters.
6. Snow plow hydraulic angle shall run off of third valve circuit on machine.
7. Snow Bucket and quick coupler shall be manufacture's brand rated at a minimum of 10.75 cyd with bolt on cutting edge.
8. Snow-blower, 136" wide head, (make) Kodiak Northwest Model LMSC44/48 Snow-blower, self contained, with loader manufacturer's quick coupler, rated at 3500 tons/hr. capacity. **Please see specifications for snow-blower**.

Warranty/Service

Machine shall be warranted (parts and labor) by factory/dealer for a minimum of 12 months with 1500 hours on the machine. There shall be a factory authorized dealer, for the machine, located a maximum of 100 miles from Ft. Greely, Alaska, for possible warranty work and service repair. The dealer shall have remote service capabilities so the machine will not have to be trucked to dealer for any warranty work that maybe needed. This requirement will assure that CRTC will receive warranty service in a timely manner.

Two operator's manuals, two sets of maintenance/repair manuals and two sets of parts manuals shall come with machine and associate equipment.

Delivery

Machine with the associated equipment to include snowblower shall be delivered FOB Destination to Cold Regions Test Center, Ft. Greely, Alaska, Building #605.